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United States Securities and Exchange Commission
Washington, D.C. 20549

NOTICE OF EXEMPT SOLICITATION
Pursuant to Rule 14a-103
United States Securities and Exchange Commission
Washington, D.C. 20549

Name of the Registrant:
Name of person relying on exemption: Environmental Health Trust
Address of person relying on exemption: 8070 Georgia Avenue, Suite 301, Silver Spring, MD 20910

Written materials are submitted pursuant to Rule 14a-6(g) (1) promulgated under the Securities Exchange Act of 1934. Submission is not required of this filer under the terms of the Rule but is made voluntarily in the interest of public disclosure and consideration of these important issues.

Tesla, Inc.

Vote Yes: Proposal #[10]
Stockholder Proposal Regarding Reporting on Effects and Risks Associated with Electromagnetic Radiation and Wireless Technologies (Proposal Ten from Lendri Purcell in Petaluma, CA)

Annual Meeting:

The Environmental Health Trust[1] recommends that Tesla investors support shareholder proposal (Item #10) included in the Company's 2024 proxy statement.

SUMMARY

Shareholder proposal ten (10) states:

> RESOLVED: Shareholders request that Tesla Board issue a report, at reasonable expense and excluding proprietary information, on the health effects and financial and competitive risks associated with electromagnetic radiation and wireless technologies embedded in its vehicles.
> *Proponent suggests the report include independent expert test results of magnetic fields and RF radiation for each Tesla vehicle model inside and outside of the vehicles.*

In the US and internationally Tesla sells products[2] with integrated wireless antennas from cars to solar panel equipment. Tesla's smart home products such as cameras, vacuum cleaners, and baby monitors are currently sold in limited European markets, the company states its goal is "to make the smart home become a regular part of all households." [3] Tesla employees use cell phones.

Radiofrequency (RF) radiation emitted from Tesla wireless products and the magnetic fields and extremely low frequency (ELF) generated from Tesla's products are types of non-ionizing electromagnetic fields (EMF) believed by many medical researchers, market participants and scientific experts to pose significant health, liability, and reputational risks. It is in Tesla shareholders' best interest for the Company to demonstrate how it is taking meaningful steps to address the safety of the RF and ELF EMF generating products it markets and uses and to prove that those products are (i) reasonably used in compliance with both existing and recommended health safety guidelines, and (ii) that insurance is in place now and is reasonably available in the future against such risks.

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[1] The Environmental Health Trust is a 501(c)3 think tank that promotes a healthier environment through research, education, and policy. We work with world-class experts to conduct cutting-edge research that can help inform improved safety standards for sources of pollution, including devices that emit microwave radiation. The filer of the shareholder proposal and investor in Tesla, Inc,, Lendri S. Purcell, is a board member of the Environmental Health Trust.

[2] https://fcc.report/company/Tesla-Motors-Inc

[3] TeslaSmart.com https://www.teslasmart.com/?c=1 has a portfolio including air purifiers, cameras, smart products for pets, humidifiers, sensors, switches, scales, and even smart heating. https://www.teslasmart.com/about-us states "Our goal is to make the smart home become a regular part of all households, whether it be an apartment, house, or cottage," and "TESLA started with all this in its home market in the very centre of Europe, but today it is quickly gaining attention in other countries around the world."

It is also past time for the Company to "compete on safety," regarding these products. The Company's products systemically expose its customers and employees to non-ionizing radiation. The Company's statement in opposition to this proposal downplays the issue. It is not even clear whether the company is insured or under-insured in this matter. Nor is it clear that the Company has made an effort to market products that are increasingly safer, with mitigated and/or reduced EMF, than that of the competition.

However, the substantial and growing body of peer-reviewed, published, scientific literature demonstrates mounting evidence of serious systematic risks to humans and the environment from long-term exposure to wireless RF radiation and ELF at legally allowed levels, even with current regulations and disclosures.[4] The Company's current risk factors disclosures and Environmental, Social and Governance (ESG) public disclosures appear to neglect to fully reveal the state of the research regarding these health and environmental risks and concomitant financial and reputational liabilities.[5]

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[4] Research regarding these conclusions includes and is not limited to: Lin, James, *Health Matters: A Paradigm Shift,* IEEE Microwave Magazine, December 2023, A Paradigm Shift? [Health Matters] (researchgate.net); Miller, A. B., Sears, M. E., Morgan, L. L., Davis, D. L., Hardell, L., Oremus, M., & Soskolne, C. L. (2019). Risks to Health and Well-Being From Radio-Frequency Radiation Emitted by Cell Phones and Other Wireless Devices. *Frontiers in Public Health*, *7*; Electromagnetic Fields of Wireless Communications: Biological and Health Effects
Edited By Dimitris J. Panagopoulos, CRC Press (2022), https://doi.org/10.1201/9781003201052.; Bandara, P., & Carpenter, D. O. (2018). Planetary electromagnetic pollution: It is time to assess its impact. The Lancet Planetary Health, 2(12), e512–e514 https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30221-3/fulltext?fbclid=IwAR1EQ-9mbEUvvk31NXZF8c71eoB0zQ59OBc2JOu4LwS_IGIIn6XCoD_KuIw; Belpomme, D., Hardell, L., Belyaev, I., Burgio, E., & Carpenter, D. O. (2018). Thermal and non-thermal health effects of low intensity non-ionizing radiation: An international perspective. Environmental Pollution, 242, 643–658 https://doi.org/10.1016/j.envpol.2018.07.019; McCredden, J. E., Cook, N., Weller, S., & Leach, V. (2022). Wireless technology is an environmental stressor requiring new understanding and approaches in health care. Frontiers in Public Health, 10; Miller, A. B., Morgan, L. L., Udasin, I., & Davis, D. L. (2018). Cancer epidemiology update, following the 2011 IARC evaluation of radiofrequency electromagnetic fields (Monograph 102). Environmental Research, 167, 673–683 https://www.sciencedirect.com/science/article/abs/pii/S0013935118303475;
Levitt, B. B., Lai, H. C., & Manville, A. M. (2021b). Effects of non-ionizing electromagnetic fields on flora and fauna, Part 2 impacts: How species interact with natural and man-made EMF. Reviews on Environmental Health, 37(3), 327–406 https://www.degruyter.com/document/doi/10.1515/reveh-2021-0050/html; See a compendium of published studies with low level EMF exposure at https://bioinitiative.org/rf-color-charts/; See also, Amy M. Dargo, Justin W. Wilkerson, Thaddeus P. Thomas, Benjamin T. Kalinosky, and Jason A. Payne "Computational modeling investigation of pulsed high peak power microwaves and the potential for traumatic brain injury," *Science Advances* Vol. 7, No. 44 (Oct. 29, 2021).

[5] Form 10-K 2023, Item 1A https://www.sec.gov/ix?doc=/Archives/edgar/data/1318605/000162828024002390/tsla-20231231.htm.

The requested disclosure is needed for investors because:

- Research Indicates Children Are Uniquely Vulnerable**:** Hundreds of scientists from leading research institutions and medical practitioners have called upon governments, regulatory bodies, and wireless companies to reduce public exposure to wireless RF radiation and ELF EMF, especially during pregnancy or for children who are more vulnerable due to their developing physiology and their longer expected period of exposure.[6] Many countries have substantially stricter safety limits for the environmental RF exposures created by wireless networks than those in the U.S[7] and they additionally have policies in place specifically to minimize exposure to children.[8]

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[6] International Appeal: Scientists call for protection from non-ionizing electromagnetic field exposure. *European Journal of Oncology*, *Volume 20*, 180–182 https://mattioli1885journals.com/index.php/EJOEH/article/view/4971, EMF Scientists Appeal, https://emfscientist.org/; European Union 5G Appeal, https://www.5gappeal.eu/; The International Commission on Biological Effects of EMF https://ehjournal.biomedcentral.com/articles/10.1186/s12940-022-00900-9 and https://icbe-emf.org/; Oceania Radiofrequency Scientific Advisory Association https://www.frontiersin.org/articles/10.3389/fpubh.2022.986315; Consensus Statement of UK and International Medical and Scientific Experts and Practitioners on Health Effects of Non-Ionising Radiation https://phiremedical.org/wp-content/uploads/2020/11/2020-Non-Ionising-Radiation-Consensus-Statement.pdf; Oceania Radiofrequency Scientific Advisory Association https://www.frontiersin.org/articles/10.3389/fpubh.2022.986315; International Society of Doctors for Environment http://www.isde.org/5G_appeal.pdf.
BabySafe Appeal on pregnancy and wireless https://www.babysafeproject.org/joint-statement; Numerous medical associations recommend children reduce exposure. Examples include the Austrian Medical Chamber, Cyprus Committee on Environment and Children's Health https://paidi.com.cy/wp-content/uploads/2019/05/Com-Pos-EN_-F.pdf; Argentine Society of Pediatrics https://www.sap.org.ar/comunidad-novedad.php?codigo=258,; Switzerland Doctors for the Environment https://saez.swisshealthweb.ch/de/article/doi/saez.2020.19274; American Academy of Pediatrics https://www.boarddocs.com/mabe/mcpsmd/Board.nsf/files/BTNUTF7D97A2/$file/AAP%20Cell%20Phone%20Safety%20Tips.pdf; North Carolina Department of Public Health https://epi.dph.ncdhhs.gov/oee/a_z/cellphones.html; Santa Clara California Medical Association https://www.sccma.org/Portals/19/LiveBlog/3697/SCCMA%20Best%20Practices%20for%20Safe%20Technology%20in%20Schools%20Recommendations%20%2021423.pdf?ver=CwFQFTHs4ZuDmjDYrsLXzQ%3d%3d; California Medical Association resolution is reviewed in the article Shallow Minds: How the Internet and Wi–Fi in Schools Can Affect Learning https://www.sccma.org/Portals/19/assets/docs/Shallow%20Minds%20SCCMA%20Article.pdf?ver=4UVRmelW8mFMVHnhaU4Rnw%3d%3d; California Department of Public Health 2017 cell phone advisory https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/CDPH%20Document%20Library/Cell-Phone-Guidance.pdf Press release https://www.cdph.ca.gov/Programs/OPA/Pages/NR17-086.aspx; The Maryland Children's Environmental Health and Protection Advisory Council https://health.maryland.gov/phpa/OEHFP/EH/Shared%20Documents/CEHPAC/CEHPAC_EMF%20Guidelines%20to%20Reduce%20Exposure_12.20.2022.pdf; Davis, D., Birnbaum, L., Ben-Ishai, P., Taylor, H., Sears, M., Butler, T., & Scarato, T. (2023). Wireless technologies, non-ionizing electromagnetic fields and children: Identifying and reducing health risks. *Current Problems in Pediatric and Adolescent Health Care*, *53*(2), 101374.

[7] Tesla's vehicles and wireless products create ambient RF exposures. Many countries have limits for ambient environmental exposures much more stringent than the US, especially in areas considered "sensitive" meaning schools and hospitals. See Rianne Stam, National Institute for Public Health and the Environment, the Netherlands Comparison of international policies on electromagnetic fields (power frequency and radiofrequency fields), 2018 https://www.rivm.nl/sites/default/files/2018-11/Comparison%20of%20international%20policies%20on%20electromagnetic%20fields%202018.pdf; See a country comparison at https://ehtrust.org/u-s-government-regulations-on-cell-tower-radiation/; While the US cell phone local SAR limit is lower than ICNIRPs limit, the FCC has long allowed cell phone compliance tests to use separation distances up to 25 mm, which can result in an actual SAR much higher at closer distances and, unlike other countries, the FCC has not shown it has a robust post market surveillance program in place to even ensure manufacturer stated SAR levels are confirmed. Further, for many wireless emitting devices, the stated separation distance used in tests is 20 cm.

[8] Redmayne, M. (2016). International policy and advisory response regarding children's exposure to radio frequency electromagnetic fields (RF-EMF). *Electromagnetic Biology and Medicine*, *35*(2), 176–185; 2019: France, for example has an Order of November 15, 2019 relating to the display of the specific absorption rate of radio equipment and to consumer information that recommends reducing cell phone radiation with speakerphone and that posted "Keep radio equipment away from the belly of pregnant women, and away from the lower abdomen of adolescents." https://www.legifrance.gouv.fr/loda/id/JORFTEXT000039385174#JORFARTI000039385179; Countries that ban Wi-Fi in nurseries and kindergartens include: France, Israel, Ghent Belgium, French Polynesia, Cyprus, Hospitalet Spain. Countries that minimize or ban Wi-Fi in elementary schools include France, Israel, Cyprus, along with a growing list of schools/districts worldwide as detailed in Clegg, F. M., Sears, M., Friesen, M., Scarato, T., Metzinger, R., Russell, C., Stadtner, A., & Miller, A. B. (2020). Building science and radiofrequency radiation: What makes smart and healthy buildings. Building and Environment, 176, 106324 and Davis, D., Birnbaum, L., Ben-Ishai, P., Taylor, H., Sears, M., Butler, T., & Scarato, T. (2023). Wireless technologies, non-ionizing electromagnetic fields and children: Identifying and reducing health risks. *Current Problems in Pediatric and Adolescent Health Care*, *53*(2), 101374.

- Federal Court Order: U.S. RF exposure regulations have not materially changed since they were implemented 28 years ago by the Federal Communications Commission ("FCC"). The FCC on August 13, 2021, was subjected to a federal court *Remand* in the case *Environmental Health Trust et al v. FCC*[9] regarding these very same ancient and materially unchanged human RF exposure rules. The Court also noted the FCC's reliance on the Food and Drug Administration (FDA) and stated the FDA's "conclusory statements do not constitute a reasoned explanation" as "they offer "no articulation of the factual . . . bases for the FDA's conclusion." The FCC has yet to respond to and resolve the *Remand*, including failing to subsequently publish a full and comprehensive scientific review of those same ancient regulations in response to the *Remand*. Likewise, the FDA has yet to materially respond to the ruling.

- Consumer Notice Failure**:** Tesla does not appear to prominently inform consumers of the RF or ELF EMF exposure risks in its vehicles, including and not limited to when vehicle occupants are operating cell phones. RF exposure levels are apparently not measured using the best available means, nor are they prominently displayed. Most consumers are likely unaware either that they are being exposed to RF and ELF in a Tesla vehicle, or the extent to which they are being exposed. Nor are consumers made aware of which seating location has the lowest radiation exposure levels.

- Studies Document Harm**:** Growing scientific evidence indicates that consumers may suffer injury or disease because of exposure to EMF emissions from the Company's products, which could result in lawsuits leading to financial and reputational risk to Tesla. Yet Tesla has not disclosed:

    - ***Is it insured against liabilities from exposure to its RF, ELF-EMF emitting products*? *If it is insured, is it underinsured?***

    - ***Has the Company ever conducted "real world" exposure testing of the RF and ELF-EMF levels in Tesla's vehicles and from Tesla's other products? Has such testing occurred in Tesla workplaces?***

    - ***Has the Company researched and published the impacts of its products on babies and children? Has the Company acknowledged that babies and children have thinner skin, thinner skulls and that their developing brains and organs may be more susceptible to RF radiation from the wireless technologies in their vehicles and the networks that support those devices?***

    - ***Has the Company measured outdoor RF levels from Tesla vehicles, including the aggregate levels from the current and anticipated number of vehicles on roadways when they are reasonably occupied by cell phone users? Has the Company evaluated potential cumulative impacts to wildlife and plants, especially in ecologically sensitive areas and/or urban areas where street trees, gardens and flora and fauna play vital roles to community health?***

    - ***Has the board or management ever contemplated hardware and software changes that reduce EMF emissions to "compete on safety***" i.e., developing and marketing vehicles and products and workplace practices that result in reduced exposure to RF and ELF radiation as compared to its competitors?

    - ***Has the board or management researched the RF Exposure guidelines and the magnetic field ELF policies in Switzerland and other countries to determine why those countries have often dramatically different regulations and policies?***

Now is the time for Tesla to improve and to clearly report on its efforts to manage the risks of wireless RF radiation and ELF-EMF exposure from Tesla's products, mitigate its financial and reputational risks, and educate its customers of the health risks from exposure and when wireless products are not being used consistent with the consider RF exposure warnings.

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[9] https://www.cadc.uscourts.gov/internet/opinions.nsf/FB976465BF00F8BD85258730004EFDF7/$file/20-1025-1910111.pdf.

We recommend that shareholders vote YES on proposal # 10 which requests Tesla to issue an annual report on how Tesla is addressing the health effects and financial risks related to electromagnetic radiation and wireless technologies in Tesla's wireless products and vehicles.

The shareholder proposal requests the Company to issue an annual report on how it is addressing the health effects and financial risks associated with wireless and ELF EMF exposure arising from the use of its vehicles and wireless products.

Tesla's RF-emitting products create both human and environmental ELF non-ionizing electromagnetic field exposures.

An enormous body of peer-reviewed, independent scientific research that has been published in recent years linking human and animal non ionizing radiation exposures to a myriad of serious health impacts[10] from cancer[11] to oxidative stress,[12] memory damage[13], epigenetic changes,[14] DNA/genetic damage,[15] and impacts to the neurological,[16] reproductive,[17] and endocrine systems.[18] Additionally, recently published reviews have found impacts to wildlife,[19] plants,[20] and trees,[21] and experts recommend mitigation measures to decrease exposure in ecologically sensitive areas highlighting the vulnerability of pollinators[22] and delicate ecosystems.[23]

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[11] Choi, Y.-J., Moskowitz, J. M., Myung, S.-K., Lee, Y.-R., & Hong, Y.-C. (2020). Cellular Phone Use and Risk of Tumors: Systematic Review and Meta-Analysis. *International Journal of Environmental Research and Public Health*, *17*(21), 8079; Karimi, A., Ghadiri Moghaddam, F., & Valipour, M. (2020). Insights in the biology of extremely low-frequency magnetic fields exposure on human health. Molecular Biology Reports, 47(7), 5621–5633; Carpenter, D. O. (2019). Extremely low frequency electromagnetic fields and cancer: How source of funding affects results. *Environmental Research*, *178*, 108688.

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[23] Jérémy S. P. Froidevaux, Laura Recuero Virto, Marek Czerwiński, Arno Thielens, and Kirsty J. Park Addressing Wildlife Exposure to Radiofrequency Electromagnetic Fields: Time for Action Environmental Science & Technology Letters, 2024, 11, 1, 3–4 ; Balmori A. (2021) Electromagnetic radiation as an emerging driver factor for the decline of insects. Science of the Total Environment. 767: 144913; Levitt, B. B., Lai, H. C., & Manville, A. M. (2021). Effects of non-ionizing electromagnetic fields on flora and fauna, Part 3. Exposure standards, public policy, laws, and future directions. Reviews on Environmental Health.

While far more research needs to be done to fully quantify real world exposures, studies on connected cars and electric vehicles generally have found (a) passengers are exposed to multiple types of EMF when sitting inside the vehicle from the car's electrical system and internal wireless components, and (b) people and wildlife are exposed to RF and EMF emissions outside the car generated from vehicle navigation and communications systems and other equipment.[24] While these studies have generally found levels of RF and magnetic fields in vehicles compliant with FCC and ICNIRP limits (set only to protect against heating), some measured levels have been described[25] as "high when compared to other daily exposures such as those suffered at home or at work." The seat location of a passenger can make a difference in a passenger's total EMF exposure and the real-world use of personal wireless devices in a car such as a cell phone or tablet can further increase a passenger's exposure, with children receiving higher exposures.[26]

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[26] S. -W. Leung, Y. Diao, K. -H. Chan, Y. -M. Siu and Y. Wu, "Specific Absorption Rate Evaluation for Passengers Using Wireless Communication Devices Inside Vehicles With Different Handedness, Passenger Counts, and Seating Locations," in *IEEE Transactions on Biomedical Engineering*, vol. 59, no. 10, pp. 2905-2912, Oct. 2012; Jeladze, V. B.; Nozadze, T. R.; Tabatadze, V. A.; Petoev-Darsavelidze, I. A.; Prishvin, M. M.; Zaridze, R. S., Electromagnetic Exposure Study on a Human Located inside the Car Using the Method of Auxiliary Sources, Journal of Communications Technology & Electronics, 2020, Vol 65, Issue 5, p457; Y. Diao, W. N. Sun, K. H. Chan, S. W. Leung and Y. M. Siu, "SAR evaluation for multiple wireless communication devices inside a vehicle," *2013 International Symposium on Electromagnetic Theory*, Hiroshima, Japan, 2013, pp. 626-629; A. -K. Lee and H. -D. Choi, "Brain EM Exposure for Voice Calls of Mobile Phones in Wireless Communication Environment of Seoul, Korea," in *IEEE Access*, vol. 8, pp. 163176-163185, 2020; Gryz, K., Karpowicz, J., & Zradziński, P. (2022). Complex Electromagnetic Issues Associated with the Use of Electric Vehicles in Urban Transportation. *Sensors*, *22*(5), Article 5. https://doi.org/10.3390/s22051719; C. Li, S. Xing, J. Lei, J. Zhao, Q. Shao and R. Chen, "Evaluation of RF Exposure Dosimetry from a Mobile Phone Inside a Vehicle by Numerical Simulation," *2018 12th International Symposium on Antennas, Propagation and EM Theory (ISAPE)*, Hangzhou, China, 2018, pp. 1-4 ; Nozadze T, Jeladze V, Tabatadze V, Petoev I, Zaidze R. Mobile phone antenna's EM exposure study on a homogeneous human model inside the car. 2018 XXIIIrd International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory (DIPED). Tlibisi, Georgia. Sep 24-27, 2019. DOI: 10.1109/DIPED.2018.8543310 which states, ""The obtained results… showed the presence of resonance and reactive fields inside the car, that causes high SAR in human tissues. The reason of this is that at the considered frequencies car's metallic surface acts as the resonator. So, it isn't desirable speak on phones for a long time inside the car, that can be hazardous for the cell phone users located in it."

Scientific groups and medical organizations,[27] including the American Academy of Pediatrics (AAP),[28] have called for updated regulations and have issued recommendations to reduce children's wireless exposure because RF radiation penetrates deeper in children's brains and bodies,[29] and their rapidly developing brains are more susceptible[30] to adverse health impacts. Importantly, pregnancy is a critical time of vulnerability.[31] Researchers from Kaiser Permanente and international institutions have published studies linking higher magnetic field EMF exposure during pregnancy to increased risk of miscarriage,[32] as well as increased ADHD,[33] obesity,[34] and asthma.[35]

Yet automakers, including Tesla, have not publicly provided measurements of the complex real world EMF exposures in vehicles, nor do they accessibly document EMF measurements for consumers, much less provide information on the potentially higher radiation exposures from using a cell phone in a car and clear instructions on how to reduce exposure during pregnancy or on which side of the car to place the baby's car seat. Many people are in vehicles for many hours a day and the cumulative exposure over years can be significant.

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[27] See footnote 7.

[28] https://healthytechhome.org/wp-content/uploads/sites/201/American-Academy-of-Pediatrics-Letters-to-FCC-and-Congress-.pdf.

[29] Fernández, C., de Salles, A. A., Sears, M. E., Morris, R. D., & Davis, D. L. (2018). Absorption of wireless radiation in the child versus adult brain and eye from cell phone conversation or virtual reality. Environmental Research, 167, 694–699; Mohammed, B., Jin, J., Abbosh, A. M., Bialkowski, K. S., Manoufali, M., & Crozier, S. (2017). Evaluation of Children's Exposure to Electromagnetic Fields of Mobile Phones Using Age-Specific Head Models With Age-Dependent Dielectric Properties. IEEE Access, 5, 27345–27353.

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[31] https://www.babysafeproject.org.

[32] Ghazanfarpour, M., Kashani, Z. A., Pakzad, R., Abdi, F., Rahnemaei, F. A., Akbari, P. A., & Roozbeh, N. (2021). Effect of electromagnetic field on abortion: A systematic review and meta-analysis. *Open Medicine (Warsaw, Poland)*, *16*(1), 1628–1641.
Li, D.-K., Chen, H., Ferber, J. R., Odouli, R., & Quesenberry, C. (2017). Exposure to Magnetic Field Non-Ionizing Radiation and the Risk of Miscarriage: A Prospective Cohort Study. *Scientific Reports*, *7*(1), 17541; Li, D.-K., Odouli, R., Wi, S., Janevic, T., Golditch, I., Bracken, T. D., Senior, R., Rankin, R., & Iriye, R. (2002). A population-based prospective cohort study of personal exposure to magnetic fields during pregnancy and the risk of miscarriage. *Epidemiology (Cambridge, Mass.)*, *13*(1), 9–20; Irani M, Aradmehr M, Ghorbani M, Baghani R. Electromagnetic Field Exposure and Abortion in Pregnant Women: A Systematic Review and Meta-Analysis. *Malays J Med Sci*. 2023;30(5):70-80

[33] Li, D.-K., Chen, H., Ferber, J. R., Hirst, A. K., & Odouli, R. (2020). Association Between Maternal Exposure to Magnetic Field Nonionizing Radiation During Pregnancy and Risk of Attention-Deficit/Hyperactivity Disorder in Offspring in a Longitudinal Birth Cohort. JAMA Network Open, 3(3), e201417; Byun, Y.-H., Ha, M., Kwon, H.-J., Hong, Y.-C., Leem, J.-H., Sakong, J., Kim, S. Y., Lee, C. G., Kang, D., Choi, H.-D., & Kim, N. (2013). Mobile Phone Use, Blood Lead Levels, and Attention Deficit Hyperactivity Symptoms in Children: A Longitudinal Study. *PLOS ONE*, *8*(3), e59742.

[34] Li, D.-K., Ferber, J. R., Odouli, R., & Quesenberry, C. P. (2012). A Prospective Study of In-utero Exposure to Magnetic Fields and the Risk of Childhood Obesity. *Scientific Reports*, *2*(1), 540.

[35] Li, D.-K., Chen, H., & Odouli, R. (2011). Maternal Exposure to Magnetic Fields During Pregnancy in Relation to the Risk of Asthma in Offspring. Archives of Pediatrics & Adolescent Medicine, 165(10), 945–950.

Over the years, lawsuits[36] have alleged health damages from non-ionizing EMF, including from vehicles[37] and devices.[38] Internationally, lawsuits related to personal injuries from wireless radiation exposure from cell phones have settled with compensation to the cell phone user.[39] While we are not aware of current litigation against Tesla specifically related to EMF health issues, consumers have posted on social media that they have developed a variety of health symptoms which they have associated with use of their Tesla vehicles.[40] Studying these consumer posts and reporting on them, versus effectively ignoring them, is the path of a socially responsible organization.

Very significantly, many wireless telecommunications companies have reportedly been unable to get insurance to comprehensively cover liabilities related to health damages from exposure to radiofrequency emissions for well over a decade.[41] The world's leading commercial insurers have recognized the risks of wireless radiation and non-ionizing EMF exposure for years now. 5G and wireless radiation are ranked as "high" risk.[42] For example, a 2019 Report[43] by Swiss Re Institute classifies 5G mobile networks as a potentially "high" "off-the-leash" risk referencing nonionizing EMF as one of the factors stating:

> Existing concerns regarding potential negative health effects from electromagnetic fields (EMF) are only likely to increase. An uptick in liability claims could be a potential long-term consequence . . . as the biological effects of EMF in general and 5G in particular are still being debated, potential claims for health impairments may come with a long latency.

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[36] Willis north America, Electromagnetic fields, more than just an eyesore https://web.archive.org/web/20150413071304/https://www.willis.com/Documents/Publications/Industries/Real_Estate/Views_March2012_Facing_Future.pdf.

[37] Nissan LEAF Electromagnetic Radiation Lawsuit Filed in Georgia, 2015, CarComplaints.com; https://dockets.justia.com/docket/georgia/gandce/1:2021cv02728/292033; Bill S. Forcade, Electromagnetic Field Litigation: A Growing Issue for Real Estate and Building Concerns, The Real Estate journal 2002 https://www.jenner.com/a/web/4wrztq3m5wfU8kujto4MWJ/4HRMZQ/REFJForcade.pdf.

[38] *Murray, et al. v. Motorola et al.*https://portal-dc.tylertech.cloud/app/RegisterOfActions/#/A63BB82B16CD8E57D139B5E53C80B25C8A139A48AB24C42CB538F841709BAED0/anon/portalembed: See also Lundy, Lundy, Soileau & South, LLP, Press Release: In New Attack on Telecom Secrecy, Family of Pastor Alleges Cell Phone Radiation Link to His Deadly Brain Cancer (April 8, 2021); April Marie Walker, et al., v. Motorola Complaint https://ehtrust.org/wp-content/uploads/april_walker_complaint.pdf.

[39] In 2017, the Italian court of Ivrea ruled that the long-term use of a company-issued cell phone caused Telecom employee Roberto Romeo's non-cancerous brain tumor and he was ordered to receive compensation; https://www.theguardian.com/technology/2017/apr/21/italian-court-rules-mobile-phone-use-caused-brain-tumour; in 2012, the Italian Supreme Court affirmed a ruling granting a workers compensation claim to the National Institute for Workmen's Compensation https://microwavenews.com/news-center/italian-supreme-court-affirms-tumor-risk.

[40] Instagram post with lots of comments of people sharing their experience of symptoms associated with Tesla vehicles can be found at https://www.instagram.com/reel/C6efOCGJy79; Youtube TESLA Model 3 and Your Health | EMF Radiation Review https://www.youtube.com/watch?v=AcYDVN_Hcl8;

[41] Roseanne White Geisel, (2007) Insurers exclude risks associated with electromagnetic radiation, Business Insurance. https://www.businessinsurance.com/article/20070603/ISSUE03/100022051/insurers-exclude-risks-associated-with-electromagnetic-radiation.

[42] https://ehtrust.org/key-issues/reports-white-papers-insurance-industry/.

[43] Swiss Re 5G Report "Off the leash – 5G mobile networks" https://www.swissre.com/institute/research/sonar/sonar2019/SONAR2019-off-the-leash.html PDF https://ehtrust.org/wp-content/uploads/Swiss-Re-SONAR-Publication-2019-excerpt-1.pdf.

The Board's opposing statement asserts that EMF is not the sole reason for the Swiss Re Institute's 2019 classification of 5G as "high" risk as there are additional potential issues such as cybersecurity, data privacy and espionage. However, the reality is that the issue of potential health effects from non-ionizing EMFs has been an important liability issue since *well before the age of 5G.* Insurers have long investigated the issue and long compared the risks of EMF exposure to lead and asbestos.[44] In 2010, the Underwriters at Lloyd's of London[45] stated in their report on EMF that:

> [T]he danger with EMF is that, like asbestos, the exposure insurers face is underestimated and could grow exponentially and be with us for many years.

General commercial liability insurance policies [46]commonly have "electromagnetic field exclusions," applied as the market standard[47] excluding liability coverage for such risks.[48] Tesla's existing risk factors disclosure states, regarding product liability claims, that, "In most jurisdictions, we generally self-insure against the risk of product liability claims for vehicle exposure, meaning that any product liability claims will likely have to be paid from company funds and not by insurance" and "As a general matter, we do not maintain as much insurance coverage as many other companies do, and in some cases, we do not maintain any at all."[49] To the extent that Tesla is self-insured for electromagnetic exposure risks, this is all the more reason that Tesla should (i) report upon and disclose these risks to its stockholders and (ii) also tout its leadership in this area as compared to its competitors, should Tesla in fact be a leader.

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[44] Business insurance, White paper explores risks that could become 'the next asbestos', May 17, 2011; Business Insurance, "The Next Asbestos: Five Emerging Risks that Could Shift the Liability Landscape." In 1999, Microwave News reported that, "Lloyd's of London, the leading U.K. insurance underwriter, is refusing to cover manufacturers of wireless phones against health risks to users of their phones…The announcement follows the release of the University of Bristol findings of changes in cognitive function following exposure to signals from a mobile phone." Page 6 at https://microwavenews.com/news/backissues/m-a99issue.pdf; A 2016 Report "Investigation of athermal effects of electromagnetic fields in mobile communications" investigated cognitive effects as well as whether and how the RF-EMF changes cells of the human body." https://www.diagnose-funk.org/download.php?field=filename&id=366&class=DownloadItem.

[45] 2010 Lloyd's of London Report on Electromagnetic Fields "Electromagnetic fields from mobile phones: recent developments." Lloyd's Emerging Risks Team Report, November 2010 https://www.lloyds.com/news-and-insights/risk-reports/library/emf; Also, the Austrian Accident Insurance Institute has several reports on EMF including a 2011 Report "Investigation of athermal effects of electromagnetic fields in mobile radio areas."

[46] https://ehtrust.org/key-issues/electromagnetic-field-insurance-policy-exclusions/; See an example in https://ehtrust.org/wp-content/uploads/Casualty_policy1.compressed.pdf in which the electromagnetic radiation exclusion is part of several exclusions to exposures such as asbestos, lead, mold, and nuclear energy. The electromagnetic radiation exclusion not only excludes mitigation and harm from electromagnetic radiation but also excludes paying for the defense of "any supervision, instruction, recommendation, warning or advice given or which should have been given in connection with bodily injury, property damage, abatement and/or mitigation etc. (page 14); See also https://www.jrseco.com/wp-content/uploads/Insurance-AE-CFC-Underwriting-Limited-Lloyds-Latest-Version-February-7th-2015.pdf.

[47] https://completemarkets.com/Electromagnetic-Fields-Utilities-Liability-Insurance/Storefronts/

[48] Lloyd's of London Report on Electromagnetic Fields "Electromagnetic fields from mobile phones: recent developments," Lloyd's Emerging Risks Team Report, November 2010; https://ehtrust.org/key-issues/electromagnetic-field-insurance-policy-exclusions 2016 Austrian Accident Insurance Institute (AUVA) ATHEM Report "Investigation of athermal effects of electromagnetic fields in mobile communications."; Business Insurance (2011) White paper explores risks that could become 'the next asbestos,' https://www.businessinsurance.com/article/20110517/STORY/110519944/White-paper-explores-risks-that-could-become-the-next-asbestos– See also Factsheets on Legal Liability of Cell Towers at https://ehtrust.org/wp-content/uploads/Legal-Liability-Cell-Tower-Radiation-Health-Effects-3.pdf.

[49] Form 10-K 2023, page 23 https://www.sec.gov/ix?doc=/Archives/edgar/data/1318605/000162828024002390/tsla-20231231.htm.

RF, magnetic field, and other non-ionizing EMF are often defined as "pollutants" alongside radioactive waste and hazardous chemicals,[50] often requiring specific pollution or environmental liability protection riders, if they are even available at all. [51] And, with the marketplace at Lloyd's reportedly refusing to underwrite the risks at all, the viability of any commercial market for such coverage is highly suspect. Hence, companies whose products emit substantial wireless radiation should consider mitigating RF exposure *beyond mere compliance* with existing governmental regulations. [52]

Companies like Tesla that manufacture and/or sell wireless and non-ionizing EMF generating products may be uninsured or underinsured for potential liability from lawsuits for personal injury or other damages. They also face the risks of current or future regulation, consumer backlash and potential disruptions related to not redesigning products before regulations change or markets shift.

Tesla manufactures and sells wireless RF and EMF generating products. Yet, in our opinion, Tesla's SEC filings and other public disclosures do a poor job of disclosing such risks to investors and the public. The proposal seeks a remedy to this disclosure gap.

The fact that Tesla's products may comply with the FCC's outdated 28-year-old wireless radiation exposure guidelines is insufficient for protecting against financial and reputational risks.

Tesla's opposing statement contends that its products comply with FCC's regulatory requirements as well as United Nations Economic Commission for Europe Regulation 10, and "takes into account" the limits set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). This response is insufficient for a socially responsible corporation, especially as these limits do not protect against the effects of long-term exposure. Nor does such compliance defend consumers against concussion-level impacts from compliant devices, as reported by IEEE and the U.S. Military.[53]

Both ICNIRP and FCC's human exposure limits for RF are designed[54] only to protect users against the heating effects of short-term exposures, not the biological impacts arising from non-heating and long-term exposures. Thus, compliance with these regulations do not ensure that the health of a Tesla consumer will not be harmed. Tesla's vehicles are often used by people for multiple hours a day, for years, resulting in thousands of hours of cumulative exposure. Further, the FCC's RF exposure limits and supporting regulations have been under federal court *Remand* since August 13, 2021.

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[50] Commercial insurance Employee Benefits Personal Insurance Risk Management Surety "When to Include Contractors Solution Liability" August 29, 2018 https://www.psfinc.com/wp-content/uploads/psfinc/2018/08/PSF_Construction-Pollution-Liability.pdf; Complete Markets "Electromagnetic Fields (Utilities) Liability Insurance," https://completemarkets.com/Electromagnetic-Fields-Utilities-Liability-Insurance/Storefronts/; Electromagnetic Field Insurance Policy Exclusions Cell Phone Radiation and EMFs - Environmental Health Trust.

[51] https://www.flydenver.com/app/uploads/2023/09/230_insurance_risk-1.pdf page 6 of 11; https://ehtrust.org/wp-content/uploads/ironshore-environmental-includes-electromagnetic-fields-as-pollution.pdf.

[52] Pearce, J. M. (2020). Limiting liability with positioning to minimize negative health effects of cellular phone towers. Environmental Research, 181, 108845. https://www.sciencedirect.com/science/article/abs/pii/S0013935119306425?via%3; Dihub Press release at Science Daily Siting cell towers needs careful planning https://www.sciencedaily.com/releases/2019/12/191203162553.htm.

[53] See: Lin, James, *Health Matters: A Paradigm Shift,* IEEE Microwave Magazine, December, 2023, A Paradigm Shift?; A. M. Dagro, J. W. Wilkerson, T. P. Thomas, B. T. Kalinosky, and J. A. Payne, "Computational modeling investigation of pulsed high peak power microwaves and the potential for traumatic brain injury," Sci. Adv., vol. 7, no. 44, pp. 1–10, Oct. 2021, doi: 10.1126/sciadv. abd8405.

[54] Lai, H., & Levitt, B. B. (2022). The roles of intensity, exposure duration, and modulation on the biological effects of radiofrequency radiation and exposure guidelines. *Electromagnetic Biology and Medicine*, *41*(2), 230–255; Lin, J. C. (2023). Incongruities in recently revised radiofrequency exposure guidelines and standards. *Environmental Research*, *222*, 115369.

FCC's limits, adopted in 1996, are, like ICNIRP, based on a level of adverse effect determined from decades-old animal studies that used RF exposure times of *under an hour* and only considered thermal (heating) effects.[55] Data on long-term exposure was unavailable in 1996. This is why Norbert Hankin of the Environmental Protection Agency's Radiation Protection Division stated[56] that "federal health and safety agencies have not yet developed policies concerning possible risk from long-term, nonthermal exposures."

Aware that the FCC's 1996 limits lacked the underpinning of solid scientific data regarding long-term health effects, the Federal Drug Administration nominated the National Toxicology Program (NTP) of the National Institutes of Health to initiate experiments exposing animals to long-term cell phone radiation because:

> … the existing exposure guidelines are based entirely on protection from acute injury from thermal effects of RF exposure and may not be protective against any non-thermal effects of chronic exposures.

Federal agencies have no to minimal expertise and related activities regarding RF health effects, and there are no U.S. government scientific reports that evaluate regulatory limits with consideration of all of the up-to-date scientific evidence.[57]

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[55] International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF), (2022). Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G. Environ Health. Oct 18;21(1):92.

[56] https://ehtrust.org/wp-content/uploads/EPA-Hankin-Letter-2002.pdf.

[57] The US does not have human exposure limits for magnetic fields or ELF. FCC's 1996 human exposure limits for RF have not been evaluated via a complete scientific review of recent health effects studies by U.S. agencies with health and safety expertise. The EPA, NCI, CDC, NTP and OSHA have no funded research activities at this time. The EPA was defunded just as it was about to release the recommended human exposure limits. See a June 19, 1995 Letter from the E. Ramona Tomato EPA Office of Radiation and Air to Richard M Smith Chief Office of Engineering and Technology FCC https://ehtrust.org/wp-content/uploads/2016/04/EPA-Letter-to-Mr.-Smith-by-Ramona-Travato.pdf where the EPA states, "The guidelines are substantially complete and beginning to enter the review phase… issuance of thermal guidelines will be in early 1996." In 1995 the EPA had briefed both the FCC and the National Telecommunications and Information Administration regarding its safety standard development stating that Phase 1 would address only short-term thermal impacts of RF radiation but "does not include modulation, chronic exposure or non thermal [non-heating] impacts." Phase 2 would address modulated and nonthermal exposures and result in the final guidelines. See https://ehtrust.org/wp-content/uploads/Memorandum-from-Robert-F.-Cleveland-Office-of-Engineering-and-Technology-to-FCC-Secretary-Ex-Parte-Presentation-by-U.S.-Environmental-Protection-Agency-March-22-1995-.pdf. On July 8, 2020, EPA's Lee Ann B. Veal wrote Theodora Scarato that "EPA's last review was in the 1984 document Biological Effects of Radiofrequency Radiation. The EPA does not currently have a funded mandate for radiofrequency matters." https://ehtrust.org/wp-content/uploads/EPA-Director-Letter-on-EMFs-to-Theodora-Scarato-July-8-2020.pdf.
The National Cancer Institute has repeatedly stated that "Neither the literature reviews, nor the fact sheets, make safety determinations." https://ehtrust.org/wp-content/uploads/NationalCancerInsituteResponsetoMCPSparentInquiryaboutMontgomeryCountySchoolsStatement.pdf; On July 1, 2015, the Occupational Safety and Health Administration wrote that, "RF emissions are not on OSHA's active regulatory agenda, so we have not conducted a comprehensive literature review or risk assessment on RF hazards." The CDC has no research reports or activities related to EMF bioeffects and EHT's FOIAs show some CDC webpages on RF were drafted with the help of an industry consultant https://ehtrust.org/the-cdc-hired-an-industry-consultant-to-develop-website-information-for-the-public/.
The FDA has only a limited literature review (not a systematic review) focused only on cell phones (not vehicles, Wi-Fi nor full body environmental exposures) and only on cancer studies (with study publication dates only to 2018), which omits any review of 5G technology and importantly, omits review of studies that focused on non-cancer health impacts such as those related to reproduction and the brain. Thus the FDA report does not address the totality of the science on health effects from EMF exposure. See scientists who wrote the FDA criticizing its literature review at https://ehtrust.org/wp-content/uploads/Scientists-Letters-to-FDA.pdf; Full Report on the FDAs lack of adequate activities related to wireless RF at https://ehtrust.org/wp-content/uploads/FDA-Declaration-EHTRUST.ORG-December-14-2021.pdf; The Government Accountability Report on 5G (GAO-21-26SP, 2020) clarified that the FDA and other organizations "only reviewed a subset of the relevant research" and stated in regards to the FDA Literature Review that "The assessment focused on cancer-related animal and human studies of frequencies below 6 GHz." Thus, there are not any up to date published reviews on the health and environmental risks of wireless radiation that considers the totality of the research by U.S. agencies.

ICNIRP limits and its decision-making process have been highly criticized[58] as these limits, like FCC limits, do not protect against the biological effects from non-thermal, low level and/or, long-term exposures, and thus cannot be considered adequately protective of humans or the environment, or of Tesla stockholders' interests.

We note that the Code of Federal Regulations (CFR) does not describe the FCC exposure guidelines as "safety" limits. Instead, the CFR sets out maximum permissible exposure limits for the general population. The Board stated in its opposition to the resolution that "we also strive to make sure that our products are safe during the course of ordinary use, including with respect to the electromagnetic and radio frequency (RF) radiation… For example, we have a dedicated team ensuring compliance of our wireless components with FCC standards."[59] In effect the Board is suggesting that complying with these standards ensures safety – and is therefore relying upon these limits to protect shareholders – when even the FCC itself does not label them as safety limits.[60] As further described in the next section below, the U.S. Appeals Court, D.C. Circuit ruled with respect to these limits that "The factual premise—the non-existence of non-thermal biological effects—underlying the current RF guidelines may no longer be accurate."[61]

Compliance with the United Nations Economic Commission for Europe Regulation 10[62] does not ensure safety. Although the regulation is intended to ensure "electromagnetic compatibility' meaning "the ability of a vehicle or component(s) or separate technical unit(s) to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment" the regulation is focused on electromagnetic disturbance, (i.e., interference) with other networks and equipment. In other words, the regulation is designed to ensure machines don't interfere with each other, but does not consider interference with living organisms, such as humans or nature.

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[58] Lin J. C. (2023). Incongruities in recently revised radiofrequency exposure guidelines and standards. *Environmental research*, *222*, 115369: Nordhagen, Else K. and Flydal, Einar. (2022). Self-referencing authorships behind the ICNIRP 2020 radiation protection guidelines. *Reviews on Environmental Health*; Ben Ishai, P., Davis, D., Taylor, H., & Birnbaum, L. (2022). Problems in evaluating the health impacts of radio frequency radiation. *Environmental research*, 115038. Advance online publication; Redmayne, M., & Maisch, D. R. (2023). ICNIRP Guidelines' Exposure Assessment Method for 5G Millimetre Wave Radiation May Trigger Adverse Effects. *International journal of environmental research and public health*, *20*(7), 5267; International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF), (2022). Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G. Environ Health. Oct 18;21(1):92; McCredden, J. E., Weller, S., & Leach, V. (2023). The assumption of safety is being used to justify the rollout of 5G technologies. *Frontiers in public health*, *11*, 1058454; Hardell, L., & Carlberg, M. (2020). [Comment] Health risks from radiofrequency radiation, including 5G, should be assessed by experts with no conflicts of interest. *Oncology Letters*, *20*(4), 1–1; Melnick, R. (2020). Regarding ICNIRP'S Evaluation of the National Toxicology Program's Carcinogenicity Studies on Radiofrequency Electromagnetic Fields. *Health Physics*, *118*(6), 678–682; Jeschke P, Alteköster C, Hansson Mild K, Israel M, Ivanova M, Schiessl K, Shalamanova T, Soyka F, Stam R and Wilén J (2022). Protection of Workers Exposed to Radiofrequency Electromagnetic Fields: A Perspective on Open Questions in the Context of the New ICNIRP 2020 Guidelines. *Front. Public Health* 10, 875946.; Weller S, McCredden JE. Understanding the public voices and researchers speaking into the 5G narrative. Front Public Health. 2024 Jan 12;11:

[59] Schedule 14A 2024 (proxy statement), page 105 https://www.sec.gov/Archives/edgar/data/1318605/000110465924053333/tm2326076d15_def14a.htm#tPNPR.

[60] 47 CFR 1.1310(e) https://www.ecfr.gov/current/title-47/part-1/section-1.1310#p-1.1310(e).

[61] Environmental Health Trust et al. v. FCC, August 13, 2021, https://www.cadc.uscourts.gov/internet/opinions.nsf/FB976465BF00F8BD85258730004EFDF7/$file/20-1025-1910111.pdf

[62] For example, see paragraph 2.2, which defines electromagnetic disturbance as "any electromagnetic phenomenon which may degrade the performance of a vehicle." Regulation No 10 of the Economic Commission for Europe of the United Nations https://eur-lex.europa.eu/eli/reg/2012/10/oj.**Error! Hyperlink reference not valid.**

Worse, FCC and ICNIRP limits as well as FCCs compliance test methods do not assure protection of animals and the natural environment.[63] Investors need to be aware that Tesla products, such as its vehicles, create environmental exposures to wildlife, trees and plants. Yet there are no governmental regulations for RF emissions to ensure protection of the environment. Has Tesla evaluated the environmental exposures and potential impacts from the EMF emissions of its products? History shows that environmental protections always lag behind the rapid pace of technology. With growing awareness and calls for regulatory oversight to protect wildlife, companies should be ready to meet the moment.

The U.S. Appeals Court, DC Circuit, ruled the FCCs decision to maintain its 1996 wireless radiation limits was arbitrary and capricious due to the FCCs failure to respond to record evidence, including the complex exposures of new technologies.

The Board's opposing statement inaccurately argues that FCC's 1996 guidelines "have not been materially updated not because of a failure to take into account new technologies or risks as the proponent suggests, but rather, because there has been a reasoned conclusion that changes to the exposure limits thus far have not been warranted." This statement is incorrect and grossly mischaracterizes the controlling legal precedent. In August 2021, the U.S. Court of Appeals for the D.C. Circuit, an influential appellate court, ruled in a major legal case, *Environmental Health Trust (EHT), et al. v. FCC,* 9 F.4th 893 (D.C. Cir. 2021), that the FCC had "failed to provide a reasoned explanation for its determination that its guidelines adequately protect against the harmful effects of exposure to radiofrequency radiation unrelated to cancer" [64] and acted "arbitrarily and capriciously" when it terminated its inquiry regarding the need to update its 1996 RF exposure guidelines.

The Court ordered the FCC, on remand, to issue a well-reasoned decision based on an examination of the record evidence it had ignored, and specifically mandated the FCC to address "the ubiquity of wireless devices, and other technological developments that have occurred since the Commission last updated its guidelines" set in 1996.

The Court also required the FCC to examine issues such as the unique vulnerability of children whose brains and developing bodies are more susceptible and the impacts of long-term RF exposure on all persons. Further, the FCC was mandated to show examination of non-cancer evidence such as studies documenting impacts to the neurological, cardiac, reproductive, immune and endocrine systems, as well as exacerbation of medical conditions in those already medically vulnerable.[65] The court also ordered the FCC to examine environmental impacts (i.e., negative impacts on the birds, bees, and trees) that the Commission had "completely ignored."

Despite the court mandate, issued in 2021, nearly three years later the FCC has yet to respond to and resolve the mandate ordered by the Court of Appeals, including failing to subsequently publish a full and comprehensive scientific review of its outdated 1996 human exposure regulations in response to the mandate.

The Remand *is* outstanding and unresolved. The FCC's failure to act in response to the landmark ruling of the D.C. Circuit Court of Appeals highlights the inadequacies of the FCC's 1996 guidelines and the risks Tesla faces in relying upon those guidelines for liability "protection" without further adjustment or disclosure.

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[63] Levitt, B. B., Lai, H. C., & Manville, A. M. (2021). Effects of non-ionizing electromagnetic fields on flora and fauna, Part 3. Exposure standards, public policy, laws, and future directions. Reviews on Environmental Health.; See also https://www.wildlifeandwireless.org.

[64] https://www.cadc.uscourts.gov/internet/opinions.nsf/FB976465BF00F8BD85258730004EFDF7/$file/20-1025-1910111.pdf.

[65] Link to 11,000 Pages of Evidence in EHT et al v. the FCC 447 exhibits in 27 Volumes- https://ehtrust.org/environmental-health-trust-et-al-v-fcc-key-documents/.

The FDA cannot provide safety assurances for the EMF exposures related to Tesla products.

In sharp contrast to Tesla Board's opposition statement that the FDAs statements to the FCC provided sufficient evidence that FCC's limits were adequately protective, the DC Circuit, in EHT et. al. v. the FCC, heavily criticized the FCC's reliance on the FDA's letters to the FCC and ruled[66] that the FDA's statements did not provide a reasoned explanation as it was "of the conclusory variety that we have previously rejected as insufficient to sustain an agency's refusal to initiate a rulemaking."

FDA statements cannot be used as proof of safety on several counts. To start, the FDA has not established or exercised comprehensive authority nor research activities[67] regarding vehicles or other environmental emitters such as cell towers.[68] The FDA only has released a limited, now outdated, literature review on the RF emissions of cell phones, *not of vehicles*. Even regarding RF frequency ranges, the FDA has never issued a risk analysis or research review that encompasses *the totality of the evidence* (for example including oxidative stress, DNA damage, impacts to the brain and reproduction, or impacts to pollinators or wildlife).

Finally, and most importantly, Tesla vehicles have equipment that emit a broad range of EMF frequencies, not just RF. Yet the FDA has not shown *any evaluation* of non-RF EMF ranges such as magnetic fields, ELF EMF and above 6 GHz technologies,[69] nor have these frequency ranges[70] nor new technologies such as 5G been comprehensively evaluated for risk or hazard by any U.S. federal agency.[71]

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[66] Page 12 in https://www.cadc.uscourts.gov/internet/opinions.nsf/FB976465BF00F8BD85258730004EFDF7/$file/20-1025-1910111.pdf.

[67] The FDA's 2021, 2022 and 2023 Annual reports of the Center for Devices and Radiological Health have zero mention of the issue of cell phones, cell towers, vehicles or wireless or other non-ionizing electromagnetic radiation. https://www.fda.gov/media/175479/download?attachment. The 2022 to 2025 Report on Strategic Priorities has nothing on the issue of RF radiation. https://www.fda.gov/media/155888/download.

[68] A June 20, 2016, email by FDA's David Kassiday states that the FDA does not address the environmental, ambient exposures from cell phone towers. Kassiday stated, "*We don't have jurisdiction over cellphone towers since those are environmental emitters.*" https://ehtrust.org/wp-content/uploads/FDA-Cell-Tower-Radiation-Health-Effects--980x606.png; On March 31, 2023 FDA Ombudsperson Abiy Desta wrote EHT's Theodora Scarato, *"Please be aware the Food and Drug Administration (FDA) does not have regulatory authority over cell phone towers and has not done an assessment on the safety of radiofrequency energy being emitted from antennas located on cell phone towers."* Link to FDA Scarato email exchange at https://ehtrust.org/wp-content/uploads/FDA-Email-Cell-Tower-Radiation-.pdf

[69] Page 44, GAO 2020 Report 5G Wireless: Capabilities and Challenges for an Evolving Network states of the FDA, "the assessment focused on cancer-related animal and human studies of frequencies below 6 GHz. The assessment did not include non-cancer outcomes or frequencies above 6 GHz," https://www.gao.gov/assets/gao-21-26sp.pdf.

[70] See Tesla Model X Owner's Manual https://www.tesla.com/ownersmanual/modelx/en_ie/GUID-7C3B5617-245E-4DA3-A620-B842166686FA.html where the chart lists the various frequencies, including 6000-8500, 76000-77000 MHz for example.
Model 3 Owner's Manual lists a number of different frequency ranges, including 60-64 GHz for "In-cabin radar" https://www.tesla.com/ownersmanual/model3/en_eu/GUID-A884F312-E99F-47CF-9699-253D501A198D.html.

[71] See footnote 71 detailing the absence of EMF bioeffect related activities for each federal agency; See also See email communications between a mother with a 5G tower near her home and the FDA and FCC. The mother requested safety data from the FCC. The FCC lawyer initially directed her to the FDA and to the WHO. The emails document how the mother requested the research reports showing safety and the FDA said cell tower and 5G tower radiation was not their area or authority and the FCC lawyer stated research reviews on the risk did not exist. As an example, Laurie Lenkel FDA Ombudsman wrote the mother that the *"FDA is responsible for protecting the public health from hazardous or unnecessary radiation from radiation emitting electronic products."* and "*The Federal Communication Commission (FCC) has jurisdiction over all radiofrequency transmitting structures in the United States. Therefore, the 5G tower you inquired about is under the authority of the FCC, not the FDA."* When asked, the FCC lawyer could not find any WHO report on the science of cell tower radiation or 5G. It could not find any reports on long term effects of wireless and cell tower radiation to children. On Oct 27, 2021 the FCC lawyer stated, *"If anyone has "studied what might happen to children if a cell tower is placed in front of their bedroom window," it's not here or anywhere else I'm aware of."* https://ehtrust.org/wp-content/uploads/FCC-Lawyer-and-FDA-Communications-with-Mother-on-Cell-Tower-G-Radiation-Safety-2.pdf

As stated in the Pittsburgh Law Review 2021 article entitled, The FCC Keeps Letting Me Be: Why Radiofrequency Radiation Standards Have Failed to Keep Up With Technology:[72]

> The FCC and FDA have failed in their obligation to prescribe safe RFR guidelines produced from wireless communication devices to protect the public health and safety.

Hundreds of scientists caution that regulations must be strengthened due to mounting scientific research pointing to serious health impacts from everyday wireless and other non-ionizing EMF exposures.

Hundreds of scientists, doctors, and public health experts[73] are calling for a re-evaluation of human exposure limits, such as those of the FCC and ICNIRP, which only protect for overheating effects to humans of short-term exposures because the majority of studies[74] have identified a broad range of adverse impacts[75] connected to RF and ELF EMF exposures at non heating levels.

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[72] Mouzaffar, Hala. 2021. "The FCC Keeps Letting Me Be: Why Radiofrequency Radiation Standards Have Failed to Keep Up With Technology". *University of Pittsburgh Law Review* 83 (1). https://doi.org/10.5195/lawreview.2021.826.

[73] See footnote 7.

[74] Leach, Victor, Weller, Steven and Redmayne, Mary. "A novel database of bio-effects from non-ionizing radiation" Reviews on Environmental Health, vol. 33, no. 3, 2018, pp. 273-280 says that "the clear majority of 2653 papers captured in the database examine outcomes in the 300 MHz–3 GHz range. There are 3 times more biological "Effect" than "No Effect" papers;" and "industry-funded studies more often than not find "No Effect"; McCredden JE, Weller S and Leach V (2023) The assumption of safety is being used to justify the rollout of 5G technologies, Front. Public Health 11:1058454 says the majority [of existing epidemiology papers in their database] show effects from mm Wave exposures. In 2024 Dr. Henry Lai released updated summaries showing the majority of studies show impacts: 89% (316 of 354) RFR oxidative effects studies published since 1997 reported significant effects including 95% (82 of 86) studies with a SAR ≤ 0.40 W/kg (which is ten times less than the 4.0 W/kg threshold of harm that the FCC and the ICNIRP use to base their RFR exposure limits).70% (328 of 466) RFR genetic effects studies published since 1990 reported significant effects including 79% (113 of 144) studies of gene expression; 77% (333 of 435) RFR neurological studies published since 2007; 83% (280 of 335) RFR reproduction and development studies published since 1990; 91% (286 of 316) ELF/static EMF oxidative effects (or free radical) studies published since 1990; 84% (288 of 344) ELF/static EMF genetic effects studies published since 1990 including 95% (168 of 177) of studies of gene expression; 91% (315 of 345) ELF/static EMF neurological studies published since 2007; 75% (65 of 87) ELF/static EMF reproduction and development studies published since 1990. Dr. Lai's analysis is posted at Dr. Joel Moskowitz of University of California Berkeleys site at https://www.saferemr.com/2018/02/effects-of-exposure-to-electromagnetic.html; Cucurachi et al., (2013). A review of the ecological effects of radiofrequency electromagnetic fields (RF-EMF). Environment International, 51, 116–140 reviewed 113 studies finding RF-EMF had a significant effect on birds, insects, other vertebrates, other organisms, and plants in 70% of the studies; Thill A, Cammaerts MC, Balmori A. Biological effects of electromagnetic fields on insects: a systematic review and meta-analysis. Rev Environ Health. 2023 Nov 23 found "vast majority of studies found effects, generally harmful ones." ; In 2010, the government of India's Ministry of the Environment and Forest issued a report on the potential impacts of communication towers on wildlife, citing hundreds of research studies that found adverse effects. The findings were summarized in "Impacts of Radio-Frequency Electromagnetic Field (RF-EMF) from Cell Phone Towers and Wireless Devices on Biosystem and Ecosystem – A Review," published in Biology and Medicine by S. Sivani et al., (2013) concluding that: regarding total effects 593 of the 919 research papers collected on birds, bees, plants, other animals, and humans showed impacts. 180 showed no impacts, and 196 were inconclusive studies.

[75] Repeated exposures are associated with biochemical changes, which can lead to health effects over time. For example, research repeatedly associates RF exposure to oxidative stress, understood to contribute to numerous impacts such as cancer, reproductive and neurological damage. Schuermann, D., & Mevissen, M. (2021). Manmade Electromagnetic Fields and Oxidative Stress—Biological Effects and Consequences for Health. *International Journal of Molecular Sciences*, *22*(7), 3772; Yakymenko, I., Tsybulin, O., Sidorik, E., Henshel, D., Kyrylenko, O., & Kyrylenko, S. (2016). Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation. *Electromagnetic Biology and Medicine*, *35*(2), 186–202; Georgiou, C. D., & Margaritis, L. H. (2021).

As noted above, the DC Circuit, in *EHT, et al. v FCC*,[76] found the FCC to have inadequately addressed the issue of children's vulnerability. The lack of protection for today's real world RF exposures was highlighted in several letters from the American Academy of Pediatrics to the FCC, FDA and elected officials[77] calling for RF human exposure regulations to be updated:

> Current FCC standards do not account for the unique vulnerability and use patterns specific to pregnant women and children. It is essential that any new standard for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded throughout their lifetimes.

Numerous published research studies[78] have linked negative health effects to exposures occurring well below the FCC/ICNIRP limits and issued science-based recommendations to significantly strengthen RF limits so that they adequately protect against the biological impacts documented in the research. As an example, Lai and Levitt's review of 112 low-intensity studies found that biological effects of RFR could occur at a median specific absorption rate (0.0165 W/kg), far lower than the "fundamentally flawed" and "insupportable" FCC limits.[79] A study by U.S. Army and Air Force Research Laboratories found that high powered pulsed microwave exposures could reach the same threshold pressures of explosive blast brain and football head impact injuries even at levels considered "safe" and compliant with current FCC RF limits.[80]

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[76] 9 F.4th 283 (D.C. Cir. 2021); https://www.cadc.uscourts.gov/internet/opinions.nsf/FB976465BF00F8BD85258730004EFDF7/$file/20-1025-1910111.pdf.

[77] American Academy of Pediatrics (AAP) to FCC Commissioner Mignon Clyburn and FDA Commissioner Margaret Hamburg calling for a review of RF guidelines (8/29/2013); AAP to the FCC calling for the FCC to open up a review of RF guidelines (7/12/2012); AAP Letter to US Representative Dennis Kucinich in Support of the Cell Phone Right to Know Act (12/12/2012), Letters at https://healthytechhome.org/wp-content/uploads/sites/201/American-Academy-of-Pediatrics-Letters-to-FCC-and-Congress-.pdf.

[78] Panagopoulos (2024) found mobile phone EMF exposure at a power density ~136 times below ICNIRP and FCC limits, significantly enhanced the genotoxic action of gamma radiation and concluded with recommendations that RF exposure limits should be lowered by over 40,000 times. Panagopoulos DJ. Mobile telephony radiation exerts genotoxic action and significantly enhances the effects of gamma radiation in human cells. Gen Physiol Biophys. 2024 Mar;43(2):103-120. doi: 10.4149/gpb_2023036. Epub 2023 Dec 8. PMID: 38099580; Belpomme, D., Hardell, L., Belyaev, I., Burgio, E., & Carpenter, D. O. (2018). Thermal and non-thermal health effects of low intensity non-ionizing radiation: An international perspective. *Environmental Pollution*, *242*, 643–658; Electromagnetic Biology and Medicine, 41(2), 230–255; Examples include a 2023 study of the Air Force Bioeffects Lab in Texas found epigenetic effects with 114 genes "significantly differentially methylated," in human skin cells after exposure to 900 MHz radiation —a frequency commonly used in wireless communications. The exposure was very low, less than 0.01 W/Kg —a fraction of 4W/kg, the level that current FCC standards assume to be the threshold for harmful RF effects. Cantu, J. C., Butterworth, J. W., Peralta, X. G., Payne, J. A., & Echchgadda, I. (2023). Analysis of global DNA methylation changes in human keratinocytes immediately following exposure to a 900 MHz radiofrequency field. Bioelectromagnetics, 44(3–4), 77–89. A Jacobs University study which found RF exposure at levels far below FCC limits more than doubled the numbers of liver and lung tumors in carcinogen-exposed mice. Lerchl, A., Klose, M., Grote, K., Wilhelm, A. F. X., Spathmann, O., Fiedler, T., Streckert, J., Hansen, V., & Clemens, M. (2015). Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans. Biochemical and Biophysical Research Communications, 459(4), 585–590.

[79] Lai, H., & Levitt, B. B. (2022). The roles of intensity, exposure duration, and modulation on the biological effects of radiofrequency radiation and exposure guidelines, Electromagnetic Biology and Medicine, 41(2), 230–255.

[80] A. M. Dagro, J. W. Wilkerson, T. P. Thomas, B. T. Kalinosky, and J. A. Payne, "Computational modeling investigation of pulsed high peak power microwaves and the potential for traumatic brain injury," Sci. Adv., vol. 7, no. 44, pp. 1–10, Oct. 2021; Lin, J. C. (2023). A Paradigm Shift? IEEE Microw. https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10314707.

In 2002, the World Health Organization International Agency for Research on Cancer (WHO/IARC) designated magnetic field ELF-EMF (a type of EMF exposure in Tesla vehicles) as a Group 2B possible carcinogen[81] due to research associating residential exposure to increased childhood leukemia risk. Since then, several research studies have continued to link this exposure to cancer[82] as well as synergistic effects[83] when combined with other toxic exposures and other adverse biological impacts, especially during pregnancy. David Carpenter MD Director of the Institute for Health and the Environment at the University at Albany published research[84] that found that source of funding impacted study findings and when bias was addressed, "the evidence that magnetic fields increase risk of cancer is neither inconsistent nor inconclusive. Furthermore, adults are also at risk, not just children, and there is strong evidence for cancers in addition to leukemia, particularly brain and breast cancer." Many countries recommend reducing public exposure significantly below ICNIRP limits and they have a variety of policies[85] to decrease magnetic field ELF-EMF exposure to children in schools or in homes, often recommending precautionary exposure levels of 3 or 4 milligauss, the level generally associated with childhood leukemia in residential exposure studies.[86]

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[81] IARC. (n.d.). Non-ionizing Radiation, Part 1: Static and Extremely Low-frequency (ELF) Electric and Magnetic Fields. https://publications.iarc.fr/98.

[82] Brabant, C., Geerinck, A., Beaudart, C., Tirelli, E., Geuzaine, C., & Bruyère, O. (2022). Exposure to magnetic fields and childhood leukemia: A systematic review and meta-analysis of case-control and cohort studies. *Reviews on Environmental Health*; Khan, M. W., Juutilainen, J., Naarala, J., & Roivainen, P. (2022). Residential extremely low frequency magnetic fields and skin cancer. *Occupational and Environmental Medicine*, *79*(1), 49–54; Malavolti M, Malagoli C, Wise LA, Poli M, Notari B, Taddei I, Fabbi S, Teggi S, Balboni E, Pancaldi A, Palazzi G, Vinceti M, Filippini T. Residential exposure to magnetic fields from transformer stations and risk of childhood leukemia. Environ Res. 2023 Dec 23:118043; Seomun, G., Lee, J., & Park, J. (2021). Exposure to extremely low-frequency magnetic fields and childhood cancer: A systematic review and meta-analysis. *PLOS ONE*, *16*(5), e0251628.

[83] Soffritti, M., & Giuliani, L. (2019). The carcinogenic potential of non-ionizing radiations: The cases of S-50 Hz MF and 1.8 GHz GSM radiofrequency radiation. *Basic & Clinical Pharmacology & Toxicology*, *125 Suppl 3*, 58–69; Soffritti, M., Tibaldi, E., Padovani, M., Hoel, D. G., Giuliani, L., Bua, L., Lauriola, M., Falcioni, L., Manservigi, M., Manservisi, F., & Belpoggi, F. (2016). Synergism between sinusoidal-50 Hz magnetic field and formaldehyde in triggering carcinogenic effects in male Sprague–Dawley rats. *American Journal of Industrial Medicine*, *59*(7), 509–521.

[84] Carpenter, D. O. (2019). Extremely low frequency electromagnetic fields and cancer: How source of funding affects results. *Environmental Research*, *178*, 108688.

[85] Comparison of international policies on electromagnetic fields (power frequency and radiofrequency fields), Rianne Stam, National Institute for Public Health and the Environment, https://www.rivm.nl/sites/default/files/2018-11/Comparison%20of%20international%20policies%20on%20electromagnetic%20fields%202018.pdf; As an example of such policies see Health Council of Netherlands argument in support of the precautionary approach https://www.healthcouncil.nl/latest/news/2022/06/29/additional-argument-in-support-of-precautionary-policy-for-overhead-power-lines: Germany says, "In addition to the established health effects, there are scientific indications for health risks at low field strengths. In order to take these indications into account, the Federal Office for Radiation Protection (BfS) recommends precautionary measures." Recommendations are listed at https://www.bfs.de/EN/topics/emf/lff/protection/precaution/precaution_node.html

[86] Brabant, Christian, Geerinck, Anton, Beaudart, Charlotte, Tirelli, Ezio, Geuzaine, Christophe and Bruyère, Olivier. "Exposure to magnetic fields and childhood leukemia: a systematic review and meta-analysis of case-control and cohort studies" *Reviews on Environmental Health*, vol. 38, no. 2, 2023, pp. 229-253. https://doi.org/10.1515/reveh-2021-0112 which states that," Our results suggest that ELF-MF higher than 0.4 μT can increase the risk of developing leukemia in children, probably acute lymphoblastic leukemia. Prolonged exposure to electric appliances that generate magnetic fields higher than 0.4 μT like electric blankets is associated with a greater risk of childhood leukemia."

In 2011, the WHO/IARC designated wireless RF radiation as a class 2B "possible" carcinogen.[87] Many scientists state that additional studies have corroborated the RF cancer association, and they conclude the current evidence base is robust enough to determine that RF is now at least a probable, if not proven, human carcinogen.[88]

Published analysis of the $30 million NIH's National Toxicology Program RF cancer animal study concluded that U.S. government FCC limits should be lowered by 200 to 400 times to protect children according to current risk assessment guidelines.[89] In addition to brain cancer, Yale research[90] funded by the American Cancer Society found thyroid cancer to be associated with higher hours of cell phone use in people with genetic susceptibility.

Chris Portier, PhD, former Director of the U.S. National Center for Environmental Health at the Centers for Disease Control and Prevention in Atlanta and the Director of the Agency for Toxic Substances and Disease Registry, who served on the WHO/IARC panel, submitted a comprehensive review[91] of the scientific research in a major cell phone/brain cancer lawsuit, concluding:

> The evidence on an association between cellular phone use and the risk of glioma in adults is quite strong . . . in my opinion, RF exposure probably causes gliomas and neuromas and, given the human, animal and experimental evidence, I assert that, to a reasonable degree of scientific certainty, the probability that RF exposure causes gliomas and neuromas is high.'

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[87] May 11, 2011 Press release https://www.iarc.who.int/wp-content/uploads/2018/07/pr208_E.pdf; IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. (2013). Non-ionizing radiation, Part 2: Radiofrequency electromagnetic fields. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*, *102*(Pt 2), 1–460.

[88] Hardell, L., & Carlberg, M. (2019). Comments on the US National Toxicology Program technical reports on toxicology and carcinogenesis study in rats exposed to whole-body radiofrequency radiation at 900 MHz and in mice exposed to whole-body radiofrequency radiation at 1,900 MHz. International Journal of Oncology, 54(1), 111–127; Miller, A. B., Morgan, L. L., Udasin, I., & Davis, D. L. (2018). Cancer epidemiology update, following the 2011 IARC evaluation of radiofrequency electromagnetic fields (Monograph 102). Environmental Research, 167, 673–683; Carlberg, M., & Hardell, L. (2017). Evaluation of Mobile Phone and Cordless Phone Use and Glioma Risk Using the Bradford Hill Viewpoints from 1965 on Association or Causation. BioMed Research International, 2017, 9218486; Directorate-General for Parliamentary Research Services (European Parliament), & Belpoggi, F. (2021). Health impact of 5G: Current state of knowledge of 5G related carcinogenic and reproductive/developmental hazards as they emerge from epidemiological studies and in vivo experimental studies. (PDF) Publications Office of the European Union; Peleg M, Berry EM, Deitch M, Nativ O, Richter E.(2022) On radar and radio exposure and cancer in the military setting. Environ Res. 2022 Oct 21:114610; Lin, J. C. (2023). Incongruities in recently revised radiofrequency exposure guidelines and standards. Environmental Research, 222, 115369. Note also publications arguing that ICNIRP and FDA criticisms are unfounded at Melnick, R. L. (2019). Commentary on the utility of the National Toxicology Program study on cell phone radiofrequency radiation data for assessing human health risks despite unfounded criticisms aimed at minimizing the findings of adverse health effects. Environmental Research, 168, 1–6 and Melnick, R. (2020). Regarding ICNIRP'S Evaluation of the National Toxicology Program's Carcinogenicity Studies on Radiofrequency Electromagnetic Fields. Health Physics, 118(6), 678–682.

[89] Uche, U. I., & Naidenko, O. V. (2021). Development of health-based exposure limits for radiofrequency radiation from wireless devices using a benchmark dose approach. *Environmental Health*, *20*(1), 84. https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones; Hardell, L., & Carlberg, M. (2019). Comments on the US National Toxicology Program technical reports on toxicology and carcinogenesis study in rats exposed to whole-body radiofrequency radiation at 900 MHz and in mice exposed to whole-body radiofrequency radiation at 1,900 MHz. *International Journal of Oncology*, *54*(1), 111–127 https://doi.org/10.3892/ijo.2018.4606.

[90] Luo, J., Li, H., Deziel, N. C., Huang, H., Zhao, N., Ma, S., Ni, X., Udelsman, R., & Zhang, Y. (2020). Genetic susceptibility may modify the association between cell phone use and thyroid cancer: A population-based case-control study in Connecticut. *Environmental Research*, *182*, 109013.

[91] Dr. Portier drafted the report for the Murray v. Motorola case https://ehtrust.org/wp-content/uploads/Expert-report-Christopher-J-Portier-Murray-v-Motorola-3-1-2021-1.pdf.

The European Parliament requested a research report, Health Impact of 5G,[92] that concluded that the commonly and longtime used wireless communication RFR frequencies (450 to 6000 MHz) are "probably carcinogenic for humans" and "these frequencies clearly affect male fertility and possibly female fertility too" with "possible adverse effects on the development of embryos, fetuses and newborns." For the higher frequency range to be used in 5G and new networks (24 to 100 GHz), the Report concluded that there were inadequate research studies on health effects available to form any conclusion on way or the other (understandable as the higher frequencies (above 24 GHz) have not been present in the environment in such a widespread way until recently, and thus, a robust body of research does not exist on people nor animals exposed long term.)

Although effects from RF, magnetic field, ELF and other non-ionizing EMF exposure *in vehicles specifically* has not been the subject of epidemiological research (i.e. studies following health status of humans who drove in modern cars exposed to ELF and RF for hours a day over years), the WHO/IARC classification applies to the agent, *not to a particular source*. While more research always needs to be done regarding quantification of risk and to address data gaps and any heightened risks to sensitive populations, the current body of evidence documents adverse biological effects from exposure to non-ionizing EMF and safety, especially after long term exposure, *is not assured.*

Tesla's consumer disclosures and warnings do not ensure that consumers are aware of how to mitigate the health risks arising from exposures.

Several of Tesla's wireless products have RF exposure information, however the verbiage is confusing. Further, consumers are not informed of the RF or magnetic field ELF measurements inside the vehicle, nor are they informed that using their personal devices, such as cell phones or streaming tablets, inside the car can potentially increase their RF exposure *due to the vehicle's construct and materials*.

For example, Tesla's website page on Model X Certification Conformity Key and Passive Unlocking System[93] states:

> Radiation Exposure Statement
> The product complies with FCC/IC RF Exposure for Low Power Consumer Wireless Power Transfer. The RF exposure limit set forth for an uncontrolled environment is safe for the operations intended, as described in this manual. Compliance was demonstrated at a distance of 20 cm or greater between the human body and the device. If the function is available, the device's output power could be lowered.

Most consumers will not read this text nor understand what it means to them.

- Does the statement "Compliance was demonstrated at a distance of 20 cm or greater between the human body and the device," mean that people should ensure their body is 20 cm away from the key fob or if not, the RF exposure levels are untested and could potentially exceed limits (as is the case for cell phones in close proximity positions)?

- Does the statement "If the function is available, the device's output power could be lowered" mean people could lower the RF output? If so, how does a consumer find the setting to change the function?

Are people with pacemakers fully aware of instructions related to pacemakers?

For example, Tesla's Model X Owner's Manual website page on Keys and Doors, Keyless Locking and Unlocking[94] states:

> Radio Wave Interference
> To avoid any possibility of interference between a pacemaker and the key fob antennas, people with implanted pacemakers should ensure their pacemaker is kept at least 22 cm away from any key fob antenna mounted in Model X…

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[92] Directorate-General for Parliamentary Research Services (European Parliament), & Belpoggi, F. (2021). Health impact of 5G: Current state of knowledge of 5G related carcinogenic and reproductive/developmental hazards as they emerge from epidemiological studies and in vivo experimental studies. (PDF) Publications Office of the European Union.

[93] https://www.tesla.com/ownersmanual/2015_2020_modelx/en_us/GUID-701175F7-3BFD-49DD-90FD-1F2D73082CA0.html.

[94] https://www.tesla.com/ownersmanual/2015_2020_modelx/en_jp/GUID-0618931A-AB47-4A93-B2C7-C0B41BF0595E.html.

The current RF exposure statements omit the complexity of real world EMF exposure to persons inside a vehicle.[95] For example, the Tesla Owner S Manual has RF exposure verbiage stating the equipment should be operated with other antennas stating:

> CAUTION: This equipment and its antennas must not be co-located or operated with another antenna or transmitter.

Does the above sentence mean a person should not use another device with a transmitting antenna in the vehicle? People use a range of RF emitting devices in their cars including cell phones, tablets, smartwatches, Bluetooth connected devices and even cell boosters.

In addition to the EMF exposure from the vehicles systems, passengers receive RF exposure from using a wireless phone or device inside a traveling car and research has found usage in vehicles can result in increased RF exposure to the device user as well as to other passengers because, for example, the vehicle's metal construct can reflect and refocus the RF.[96] This is why the American Academy of Pediatrics[97] states:

> *Avoid making calls in cars, elevators, trains, and buses. The cell phone works harder to get a signal through metal, so the power level increases.*

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[95] EM EXPOSURE STUDY OF A HUMAN INSIDE THE CAR - Conference: 12th International Conference on Communications, Electromagnetics and Medical Applications, October 2017 https://www.researchgate.net/publication/350354332_EM_EXPOSURE_STUDY_OF_A_HUMAN_INSIDE_THE_CAR_-_CEMA'17; A. R. Ruddle, "Effectiveness of Radiofrequency Field Exposure Assessment for Vehicle Occupants Based on Empty Vehicle Field Data and Field Reference Levels," *2022 International Symposium on Electromagnetic Compatibility – EMC Europe*, Gothenburg, Sweden, 2022, pp. 311-316 https://ieeexplore.ieee.org/document/9901294; A. R. Ruddle, "Preliminary estimates of electromagnetic field exposures due to advanced vehicle technologies," *2016 Loughborough Antennas & Propagation Conference (LAPC)*, Loughborough, UK, 2016, pp. 1-5, https://ieeexplore.ieee.org/document/7807587.

[96] Jeladze, V.B.; Nozadze, T.R.; Tabatadze, V.A.; Petoev-Darsavelidze, I.A.; Prishvin, M.M.; Zaridze, R.S. Electromagnetic Exposure Study on a Human Located Inside the Car Using the Method of Auxiliary Sources. *J. Commun. Technol. Electron.* 2020, *65*, 457–464. https://link.springer.com/article/10.1134/S1064226920050034; C. Li, S. Xing, J. Lei, J. Zhao, Q. Shao and R. Chen, "Evaluation of RF Exposure Dosimetry from a Mobile Phone Inside a Vehicle by Numerical Simulation," *2018 12th International Symposium on Antennas, Propagation and EM Theory (ISAPE)*, Hangzhou, China, 2018, pp. 1-4; K. H. Chan, S. W. Leung and Y. M. Siu, "Specific absorption rate evaluation for people using wireless communication device in vehicle," *2010 IEEE International Symposium on Electromagnetic Compatibility*, Fort Lauderdale, FL, USA, 2010, pp. 706-711; S. -W. Leung, Y. Diao, K. -H. Chan, Y. -M. Siu and Y. Wu, "Specific Absorption Rate Evaluation for Passengers Using Wireless Communication Devices Inside Vehicles With Different Handedness, Passenger Counts, and Seating Locations," in *IEEE Transactions on Biomedical Engineering*, vol. 59, no. 10, pp. 2905-2912, Oct. 2012.

[97] https://www.healthychildren.org/English/safety-prevention/all-around/Pages/Cell-Phone-Radiation-Childrens-Health.aspx; See North Carolina Department of Public Health listing the AAP recommendations at https://epi.dph.ncdhhs.gov/oee/a_z/cellphones.html;

Consumers sitting in cars may be carrying a transmitting cell phone in body contact positions (i.e. phone in pocket, bra or on the lap or leg) and case reports document the development of tumors directly underneath the location where people carried their phone close to their body.[98] Importantly, studies by the FCC, as well as Canadian and French governments have found a cell phones' RF levels exceed FCC's human exposure limits when laboratory tested in close proximity (direct body contact and/or 2 mm separation as in a tight pocket) usage positions.[99]

Thus, the altered RF exposure from simply being inside the metal vehicle with a transmitting phone, plus the addition of the vehicle's own wireless and electromagnetic emissions will impact a person's total aggregate exposures in ways that should be quantified and shared with consumers. Research has also documented elevated levels in electric vehicles after repairs rising the issue of the need for long term monitoring and Company evaluation.[100]

- ***Has Tesla calculated the RF exposure to a person from a transmitting cell phone or streaming tablet (situated in close proximity to the body) when inside its vehicles? What about when more than one occupant is operating a transmitting device?***

- ***To what degree does the vehicle construct for various models impact and or increase passengers aggregate RF and ELF EMF exposures?***

- ***Does Tesla inform its employees on ways to reduce RF exposure from Company issued cell phones in use in its vehicles?***

Moreover, the U.S. Court of Appeals for the D.C. Circuit recognized the importance of properly reviewing the regulations related to pre-market cell phone RF compliance tests do not reflect today's real-world use positions. That was one of the central holdings to the Court's mandate in *Environmental Health Trust, et al. v. Federal Communications Commission*, 9 F.4th 893, 908 (D.C. Cir. 2021), that the FCC reconsider and issue well-reasoned conclusions regarding the FCCs cell phone and wireless device RF test procedures *which allow a distance between the phone and body phantom.* The FCC has not responded to the remand on this count or for any of the other issues.

To mitigate risk for Tesla, the company could inform its customers of ways to reduce electromagnetic exposure in its vehicles generally, including specifics ranging from recommendations on cell phone usage in the vehicle, as well as preferred seating/car seat locations to reduce magnetic field ELF exposures.

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[98] West, J. G., Kapoor, N. S., Liao, S.-Y., Chen, J. W., Bailey, L., & Nagourney, R. A. (2013). Multifocal Breast Cancer in Young Women with Prolonged Contact between Their Breasts and Their Cellular Phones. Case Reports in Medicine, 2013, e354682; Minoretti P, Lahmar A, Emanuele E. Where is your smartphone? An unusual mass within the tensor fasciae latae muscle. Radiol Case Rep. 2023 Aug 31; 18(11):3984-3987; Shih, Y.-W., Hung, C.-S., Huang, C.-C., Chou, K.-R., Niu, S.-F., Chan, S., & Tsai, H.-T. (2020). The Association Between Smartphone Use and Breast Cancer Risk Among Taiwanese Women: A Case-Control Study. *Cancer Management and Research*, *12*, 10799–10807; See also Hardell, L., & Carlberg, M. (2019). Comments on the US National Toxicology Program technical reports on toxicology and carcinogenesis study in rats exposed to whole-body radiofrequency radiation at 900 MHz and in mice exposed to whole-body radiofrequency radiation at 1,900 MHz. *International Journal of Oncology*, *54*(1), 111–127.

[99] France cell phone test program found phones exceed limits that when converted to US test procedures could mean exceedances up to 11 times the FCC limit. See Gandhi, O. P. (2019). Microwave Emissions From Cell Phones Exceed Safety Limits in Europe and the US When Touching the Body. IEEE Access, 7, 47050–47052, See also PhoneGate Alerte documenting the 48 cell phones either software updated or withdrawn from the market due to violations of French RF limit https://phonegatealert.org/france-liste-portables-dangereux/; The FCC cell phone SAR test data showing phones tested 2mm separation distance from body exceeded RF human exposure limits was released under FOIA. Details on the FCC tests can be found at https://ehtrust.org/environmental-health-trust-foia-project/; EHT's Appeal Letter to the FCC; https://ehtrust.org/wp-content/uploads/EHT-Scarato-Appeal-RE_-FOIA-Control-Nos.-2023-000281-and-2023-000325_-FCC-2-mm-Cell-Phone-Radiation-SAR-Tests-December-28-2023-.docx.pdf ; FCC Letter on Cell Phone Radiation Tests Exceeding Limits; Canada has a post market surveillance program that found exceedances of the FCC and Health Canada limit of 1.6W/kg for head/body local SAR in some tested phone models tested in close proximity body positions. https://phonegatealert.org/en/unsafe-canadian-cell-phones/.

[100] Yang L, Lu M, Lin J, Li C, Zhang C, Lai Z, Wu T. Long-Term Monitoring of Extremely Low Frequency Magnetic Fields in Electric Vehicles. *International Journal of Environmental Research and Public Health*. 2019; 16(19):3765. https://doi.org/10.3390/ijerph16193765.

Tesla is exposed to regulatory risk as the rules begin to tighten in some jurisdictions before others.

Regulatory requirements may change, requiring more transparency and/or more stringent human and environmental exposure limits.

Importantly, the FCC human exposure limits could possibly be tightened after the FCC responds to *Environmental Health Trust, et al. v. Federal Communications Commission*, 9 F.4th 893, 908 (D.C. Cir. 2021). The Court ordered the FCC to reconsider and issue a reasoned explanation that addressed the record evidence of science on the health effects of wireless radiation regarding non-cancer health issues children's vulnerability, effects of long-term exposure, the environment, and its device testing procedures.

Currently the US limits for ambient RF are among the highest in the world. Many countries such as Switzerland, Italy, Russia and China have far more stringent environmental exposure RF limits and magnetic field ELF EMF policies.[101] **SINTEF**,[102] the largest independent research organization in Scandinavia, proposed manufacturing design guidelines to minimize the magnetic fields in electric vehicles.[103]

If U.S. limits are tightened, Tesla may have to make hardware and software changes to ensure the RF emissions meet these new rules as Tesla vehicles and their on-board systems contribute to ambient exposures. Likewise, although no federal safety limits at his time concerning ELF-EMF, the US may develop limits and regulations related to magnetic fields and other non-ionizing EMF generally and or in electric vehicles. Further, transparency measures such as the real-world measurements of RF and magnetic field ELF EMF levels *inside vehicles* could become required consumer information.

Conclusion

Tesla's limited, low-information disclosures on wireless health issues could pose financial, reputational, competitive, legal, and regulatory risk. Proactive disclosures and decisions could present beneficial opportunities, including if the Company decided to rigorously "compete on safety" regarding human and environmental EMF exposures.

Tesla has developed extremely rigorous compliance and hazard screenings beyond regulatory requirements for certain toxic chemicals. Investors can encourage the company to take a similar leadership role regarding wireless RF and magnetic field EMF radiation. It is time for the company to unambiguously "compete on safety" regarding the wireless radiation and ELF EMF emitted by its products, especially with an open federal court *Remand* concerning the FCC's 1996 regulations, and limited information about the Company's ability to obtain adequate insurance against human exposure liabilities.

We recommend that you vote **"FOR"** Item [10] on the proxy statement, the shareholder proposal requesting that Tesla measure the electromagnetic fields and RF radiation inside and outside of its vehicles and issue an annual report on the health effects and financial and competitive risks associated with electromagnetic radiation and wireless technologies embedded in its vehicles. The report should include insurance coverage associated with electromagnetic radiation and wireless technologies and compare Tesla's safety performance to the other wireless device developers, operators and manufacturers.

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[101] Comparison of international policies on electromagnetic fields (power frequency and radiofrequency fields), Rianne Stam, National Institute for Public Health and the Environment https://www.rivm.nl/sites/default/files/2018-11/Comparison%20of%20international%20policies%20on%20electromagnetic%20fields%202018.pdf; WHO Exposure limits for radio-frequency fields (public) - Data by country https://apps.who.int/gho/data/node.main.EMFLIMITSPUBLICRADIOFREQUENCY?lang=en:

[102] https://www.sintef.no/projectweb/em-safety/.

[103] https://www.sintef.no/projectweb/em-safety/project-results/design-guidelines-to-reduce-the-magnetic-field-in-electric-vehicles-/.

Tesla's existing electromagnetic compliance, health and safety procedures for its products lack the transparency and analysis necessary to determine whether and to what extent its products could cause negative health impacts to users and others who are exposed to the products' wireless radiation. Awareness of the issue is increasing; ignoring it is becoming increasingly fraught with risk. An annual report would provide clarity and act as the first step in identifying, addressing, and remediating financial and reputational risk, and therefore protecting shareholders' interests.

THE FOREGOING INFORMATION MAY BE DISSEMINATED TO SHAREHOLDERS VIA TELEPHONE, U.S. MAIL, E-MAIL, CERTAIN WEBSITES, AND CERTAIN SOCIAL MEDIA VENUES, AND SHOULD NOT BE CONSTRUED AS INVESTMENT ADVICE OR AS A SOLICITATION OF AUTHORITY TO VOTE YOUR PROXY.

PROXY CARDS WILL NOT BE ACCEPTED BY THE PROPONENT OR THE ENVIRONMENTAL HEALTH TRUST. TO VOTE YOUR PROXY, PLEASE FOLLOW THE INSTRUCTIONS ON YOUR PROXY CARD.